REMARKS

Claims 30- 41 are in this application. Claims 1-29 have been cancelled and new Claims 30 – 41 have been added.

Support for Claim 30 is found throughout the specification and in particular on page 7, lines 18-20 and lines 27-30; pages 23-25 and page 30, lines 14-16. On pages 23-25 it is taught that the catalytic domain of CUNG was cloned for expression in E. coli. On page 24, line 13, it is disclosed that 81 N-terminal amino acids were removed. This particular version of the UNG was tested in the other examples.

Support for Claims 31 and 32 is found *inter alia* on page 2, lines 20-25.

Support for Claims 33-37 is found *inter alia* on page 3, lines 8-17; page 7, lines 6-8; and page 8, lines 1-3.

Support for Claims 39-41 is found *inter alia* on page 6, lines 16-21, 24-27, page 7, lines 16-20; page 8, lines 15-16 and example 4 (page 28).

Pages 7, 8 and 27 have been amended to correct the reference to the sequence listings.

The Examiner states that there is new matter because in the last filed sequence listing, the amino acid at position 125 was changed to tryptophan. The amino acid at position 125 in SEQ ID Nos. 1 and 2 as originally filed was "W" which is tryptophan and "S" (serine) is at position 124. Therefore, no new matter has been added. SEQ ID Nos. 4-6 result from the use of PATENTIN software. Therefore, no new matter has been added.

The Examiner states "Applicants assert with regard to UNG1 and UNG2 that absent the N-terminal sequences "The resulting proteins are identical and encompass the catalytic domain." Applicants statement is correct.

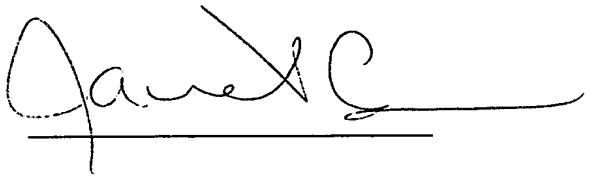
Claim 30 claims an enzyme with uracil-DNA glycosylase activity wherein the enzyme has an amino acid sequence as set forth in SEQ ID NO:2 from amino acid 82 or 301 or a funtional part thereof. UNG 1 and UNG 2 have identical catalytic domains, e.g. the amino acids 82-301 of UNG 1 and UNG 2 are the same. It is taught in the specification that the catalytic domain of cUNG was cloned for expression in E. coli. It is disclosed that 81 N-terminal amino acids were removed. This particular version of the UNG is later tested in other examples. The amino acid sequences 1-80 of UNG 1 and UNG2 differ. Therefore "with regard to UNG 1 and UNG 2 that absent the N-terminal sequences which are amino acids 1 to 80, the resulting proteins are identical (amino acids 81-301 are identical in UNG 1 and UNG 2).

It is common knowledge that fish are ectothermal (cold-blooded) organisms,. Cold adapted means adapted to temperatures below 2930 K or 100 C. This class of enzymes is also termed psychrophilic enzymes and is known to have drastically reduced thermal stability compared to mammalian counterparts. It is also important to note that although some mammals are adapted to cold environments they generally do not express cold-adapted enzymes. Mammalian enzymes are as a rule adapted to 370C.

As Claim 30 includes the amino acid sequence of the enzyme with uracil-DNA glycosylase, the rejection under 35 USC 112, first paragraph of Claims 17, 19, 21, 23, 25, 27 and 29 is moot.

Applicants submit that the present application is in condition for allowance and favorable consideration is respectfully requested.

Respectfully submitted,



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